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VESTIBULAR REACTIONS IN PATIENTS DURING OCCLUSION FORM
OF CHORIOEPENDYMITIS

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okklyuzionnoy forme khorioependimatita," Meditsinskiy
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16. Abstract <p>A change in intracranial pressure during chorioependymitis is the primary and main system of this disease. The inflammatory process in the choroid plexi and walls of the cerebral ventricles has two periods in the clinical course: In the first intensive production of liquor occurs, as a consequence of which intracranial hypertension develops, while in the second clerosis occurs in the choroid villi and ependyma, which results in a decrease in liquor secretion and intracranial hypotension, and in a number of cases, in a constriction in the foramina of the Magendie and Monro, the aqueduct of Sylvius with the development of occlusion-hydrocephalic syndrome. In the sclerotic phase of the process a small quantity of liquid enters the cerebrospinal canal, which determines the low liquor pressure during a spinal puncture.</p> <p>The otoneurological method, not having any significant contraindications, can be employed repeatedly, guaranteeing control in dynamics over the course of the disease and effectiveness of treatment.</p>			
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VESTIBULAR REACTIONS IN PATIENTS DURING
OCCLUSION FORM OF CHORIOEPENDYMITIS

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A change in intracranial pressure during chorioependymitis is the primary / 16**
and main system of this disease. The inflammatory process in the choroid plexi
and walls of the cerebral ventricles has two periods in the clinical course
(N. M. Madzhidov, 1972): in the first intensive production of liquor occurs,
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second sclerosis occurs in the choroid villi and ependyma, which results in a
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duct of Sylvius with the development of occlusion-hydrocephalic syndrome. In
the sclerotic phase of the process a small quantity of liquid enters the cere-
brospinal canal, which determines the low liquor pressure during a spinal punc-
ture.

The symotomaties of chorioependymitis is formed from pronounced general-
cerebral and comparatively scarce and late-developing local symptoms that change
developing on the condition of intracranial pressure.

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The diagnostics of chorioependymitis in some of its forms is difficult. This especially concerns the occlusion form, since during it a noncorrespondence is noted between the liquor pressure in a spinal puncture and the other clinical-paraclinical data. Occlusion of the liquor passages is a comparatively rare form of chorioependymitis. Of the total number of patients with chorioependymitis (54) that were examined with the use of otoneurological methods, we isolated 9 people with the occlusion form, in whom the data of a spinal puncture and craniograms of the fundus oculi were negative, while the presence of occlusion was established based on complaints and pneumoencephalography. We consciously selected such a contingent of patients in order to determine the possibility of objective otoneurological examination. /17

All 9 patients complained of periodic intensification of headaches, occurring suddenly on the background of normal pain, the appearance during the attack of nausea, vomiting, vertigo, noise in the ears, and noted a decrease in these phenomena with a certain position of the head.

Disorders in hearing were not found in any of those examined, although noise in the ears and head sometimes was so intensive, that it was the main complaint when they entered the hospital.

Vestibular disorders were found in all patients, except for one. The most characteristic feature in patients with occlusion was the tonicity of the nystagmus, i.e., the time delay for the occurrence of the rapid phase of nystagmus, and the prolongation and dominance of the slow phase in relation to this. The tonicity of nystagmus was defined both during spontaneous nystagmus, and even more during that induced by a caloric test.

We observed the most pronounced nystagmus tonicity in the patients with partial blockage in the region of the foramen of Magendie (patient S, 13 years old). Lengthy observation of her under hospital conditions indicated, that the appearance of attacks of headaches and spontaneous nystagmus was linked to exacerbation in the inflammatory process in the liquor passages of the brain stem section. The cerebral tissue edema that developed in the period of exacerbation resulted in constriction of the foramen of Magendie, inducing intensification of hypertension. Of all the employed clinical tests that define a disorder in the liquor-dynamics and increase in the intracranial liquor pressure, only the vestibular analyzer reflected this condition--the appearance of major tonic nystagmus and high reaction of the autonomic-sensory nature. The effectiveness of the conducted treatment was characterized, in addition to the disappearance of the general symptoms, also by extinction of spontaneous nystagmus.

We observed a high degree of nystagmus tonicity during hydrocephaly (patient S, 12 years old) that developed as a consequence of chorioependymitis. There was no spontaneous nystagmus, but during the caloric test such pronounced tonicity was determined, that the eyes seemingly stop in the extreme point of contact for a certain time. Here vigorous sensory reactions were also noted.

In the case with considerably pronounced pressure reduction in the cerebrospinal canal (6 mm Hg), as a consequence of blockage in the liquor passages, with normal condition of the fundus oculi and the absence of changes on the craniogram, two-sided spontaneous nystagmus occurred (patient A, 27 years old). Hyperreflexia of induced caloric nystagmus was noted, moderating its tonicity. The caloric test did not induce autonomic and sensory reactions.

In another patient (M, 22 years old) with increased cerebrospinal pressure (450 mm Hg in the sitting position) a study of the vestibular function determined the spontaneous, moderately-tonic two-sided nystagmus; auditory hallucinations were also noted. On the craniogram there were "finger depressions," while the fundus oculi did not show any pathological signs. In the caloric test, there was two-sided symmetrical irritation and pronounced autonomic and sensory reactions. On the pneumoencephalogram: the III ventricle was dilated, on the middle line--occlusion in the region of the aqueduct of Sylvius.

Treatment was carried out: penicillin, lydasal, humisol, furosemide, vitamins, x-ray therapy in the region of the lateral ventricles and upper cervical sympathetic nodes (B. N. Pil', 1974). After treatment, the patient began to note pronounced improvement: headaches disappeared, vertigo, auditory hallucinations, only a moderate pain in the eyeballs remained.

During repeated study of the vestibular analyzer, it was objectively noted that hyperreflexia and nystagmus tonicity disappeared, and the autonomic and sensory reactions considerably diminished after the functional tests.

By comparing the data from a study of the vestibular function of the caloric and rotating tests in the patient with low liquor pressure with those in a patient with high liquor pressure, one can note a difference in the manifestation of sensory and autonomic reactions: in the first, the absence of the indicated reactions and moderate nystagmus tonicity; in the second--high degree of manifestation of these reactions and pronounced nystagmus tonicity. But in both observations symmetry was noted in the vestibular reactions with

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hyperreflexia. According to the data of N. S. Blagoveshchenskaya (1978), the symmetry indicates the arrangement of the focus in the posterior cranial fossa or supratentorially along the middle line, and hyperreflexia --the severity of the process.

In two patients with primary supratentorial localization the vestibular disorders were characterized by the presence of asymmetry in the caloric nystagmus and pronounced autonomic and sensory reactions.

We will cite our observations.

Patient K, 18 years old, came with complaints with almost constant headaches in the frontotemporal region, of a pressing nature, attacks of short-term loss of consciousness without spasms. She has suffered from headaches since age 10, from age 16 they intensified, combining with loss of consciousness, and with aura in the form of a feeling of pressure from the outside.

Anamnesis revealed frequent colds and influenza. General condition was satisfactory. In the neurological status: slight central paresis of the VII nerve from the left, tendinous reflexes from the right more active, pyramidal pathological signs from the right, hypesthesia on the left half of the face.

Otoneurological study: there were no cochlear disorders. There is spontaneous nystagmus in the form of "floating" of the eyeball. Caloric nystagmus was asymmetrical with dominance of induced nystagmus in direction of the affected left cerebral hemisphere (Hallpike's test). Pronounced tonic nystagmus with the presence of a slow component was accompanied by pronounced autonomic and sensory reaction. The fundus oculi did not have any pathological signs.

Craniogram: on the bones of the cranial vault in the frontoparietal section the pattern of diploic veins was intensified, in the temporoparietal region the symptom of finger depressions was not very pronounced. The liquor pressure during a spinal puncture was 140 mm Hg, the liquor was transparent, colorless, normal composition.

On the pneumoencephalogram the ventricular system from the right was filled without deformation and shifts, on the left only the posterior horn of the lateral ventricle was filled, in the other sections there was no air. Conclusion: obliteration of the left foramen of Monro.

Electroencephalography: general cerebral changes with dominance in the anterior regions of the brain.

Echencephalography: moderate dilation of the ventricular system. In the clinic anti-inflammatory, dehydration and resolving therapy were conducted. Upon discharge the condition was satisfactory, the patient was disturbed by moderate headaches, and nausea. In the neurological status no changes occurred.

In the second patient (F, 17 years old) there was no spontaneous nystagmus. The caloric was tonic with "floating" towards the slow component and asymmetrical towards induced nystagmus--it was suppressed in a direction towards the affected hemisphere and was accompanied by pronounced autonomic-sensory reaction. In this patient who repeatedly came for hospital treatment, one could trace how the pressure changed in the cerebrospinal fluid (from 220 mm Hg to 170 and 110), but the nature of the vestibular disorders remained as before, i.e., nystagmus tonic, high autonomic and sensory reactions continued to be revealed. Repeated hospitalization was governed by the fact, that despite the conducted

treatment, exacerbation periodically occurred in the patient, confirmed by the presence of vestibular disorders.

According to N. S. Blagoveshchenskaya (1978), asymmetry of the vestibular reactions and increase in autonomic and sensory reaction are revealed only at a certain stage of disease and are always observed in the decompensated phase of vestibular injury, when local symptoms are revealed.

After including otoneurological methods in examination of patients with chorioependymitis, we were able to note a fairly high reactivity of the vestibular nerve, similar to that which is observed during deeper pathology of the brain.

Our observations of the patients with the occlusion form of chorioependymitis showed the convincingness of the vestibular reaction in the possible reflection of the true condition of the intracranial liquor dynamics. If occlusion is accompanied by changes on the craniogram and static phenomena on the fundus oculi, which makes it possible to establish without great difficulty the presence of intracranial hypertension, then it is considerably more complicated to diagnose the cases where changes are missing on the craniogram and fundus oculi. In such patients a study of the vestibular nerve helps to reveal hypertension and facilitates diagnosis of the occlusion form of chorioependymitis.

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The data from a study of the vestibular function broaden the possibilities of making a diagnosis of "chorioependymitis," and pinpointing the form of affection, primary localization of the pathological process, and being an additional test for the extent methods of research, in a number of cases even replace them. The otoneurological method, not having any significant contraindications, can be

employed repeatedly, guaranteeing control in dynamics over the course of the disease and effectiveness of treatment.

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